# 民國五十一年度臺灣省中南部二期作田間藥劑防治三化螟 (*Schoenobius incertulas*)、二化螟 (*Chilo suppressalis*) 與大螟 (*Sesamia inferens*) 試驗報告

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夫螟災之發生，視氣候與水稻栽培制度而異，苟欲求得最經濟防治成果，事先必須洞察螟害發生猖獗誘因，然後針對螟蟲爲害弱點及時施用藥劑防治，始得事半功倍之效，否則好高騖遠漫談防治，實無補於實際，如果忽視螟害猖獗誘因，認爲螟蟲一旦出現少數時，竟使成巨災，若以觀其全貌，則本省境內早爲螟害所威脅，無法種植水稻矣。如今年二期作普遍受螟害甚爲輕微，誠爲光復以來罕見。至於螟害發生猖獗誘因，容待另文發表，爰將本年二期作田間藥劑防治試驗結果，草成斯文，藉以拋磚引玉，尚望同道予以指正是幸。

本試驗承農復會補助經費，承劉組長廷蔚暨羅技正宗爵，蒞臨指示，又承本系同仁通力合作協助田間試驗及調查工作，並蒙湯技佐慶銓統計分析及王技術助理勝鴻繕寫，均此一併致謝。

## 試驗方法及材料

民國五十一年在屏東長治鄉，臺南柳營鄉，嘉義市臺斗坑及南投草屯四處，舉行二期作田間藥劑防治水稻螟蟲試驗，每處藥劑處理10個及對照5個，每處理混合 0.027% Tuzet 並以病蟲兼治之，隨機排列，重複4次，以 Boss 牌動力噴霧器，噴射殺蟲劑。

1. 屏東長治鄉試驗區：參加殺蟲劑5種，即 50% Lebaycid 乳劑，45% EPN 乳劑，85% Sevin 可濕性粉劑，19.5% Endrin 乳劑及 50% Ekatox 乳劑，每種殺蟲劑施用濃度兩種除 Sevin 0.10% 及 0.20% 外，餘均爲 0.025% 及 0.05%。小區面積 5 m×5 m (25 m²)，每小區20行，每行20穴，共400穴，行株距 25 cm×25 cm，供試驗品種嘉南1號，挿秧期7月17日，施藥時期8月17日，9月7日及9月26日，先後共3次，每公頃施用稀釋液量第一次爲1,000公升，第二及第三次爲1,500公升。於10月13～15日調查各處理任選50欉，藉以測定防治螟蟲效果，對照區任意拔除白穗100株外，各處理凡有白穗者悉拔携回室內剖檢三種螟蟲之幼蟲數。收割期10月18～19兩日，各處理取樣稻谷1公斤，携回嘉義晒乾後計算單位面積稻谷產量。

2. 臺南柳營鄉試驗區：參加殺蟲劑中將 Sevin 改爲 50% Sumithion 外餘均相同，每種殺蟲劑施用兩種濃度爲 0.025% 及 0.05%，小區面積及株行距與前相同，供試驗品種嘉南8號，移植時期7月4日，施藥時期8月1日，9月4日及13日共3次，每公頃施用稀釋液量亦與上相同。於9月29日、30及10月1日3日，各處理任意調查100欉。剖檢各處理三種螟蟲之幼蟲數及計算單位面積稻谷產量步驟與前相似，收割期10月18日。

3. 嘉義市臺斗坑試驗區：參加殺蟲劑中 Sumithion 改爲 Imidan 乳劑外除均與上相似，施用藥劑濃度與上相似。小區面積 5 m×4 m (20 m²) 每小區20行，每行16穴，共320穴。供試驗品種嘉農育242號，移植時期8月8日，施藥時期9月2、9及20日三次均在後期舉行，每公頃稀釋液量均爲1,500公升。11月13及14兩日任意調查各處理100欉。剖檢白穗中三種螟蟲之幼蟲數與柳營試驗區相似，收割日期11月29～30兩日，單位面積稻谷產量之計算亦與前相似。

4. 南投草屯試驗區：參加殺蟲藥劑中 Imidan 改爲 20% Dimecron 乳劑餘均與前相似。

施用藥劑濃度亦與前相似，小區面積及行株距與臺南柳營試驗區相同，供試驗品種嘉農育242×臺中 65 ($F_1$)，插秧日期 7 月 28 日，施藥日期 8 月26日，9 月18日及10月 6 日三次，每公頃施用稀釋液量與臺南柳營試驗區相似，各處理任意調查50欉，於10月28～31日舉行，該區各處理中螟害鮮有發生，故未舉行調查三種螟蟲之幼蟲數，收割日期11月 9 日，單位面積稻谷產量之計算與前相同。

## 結　　論

茲據四處試驗結果，螟災發生與自然環境及水稻栽培制度有密切關係，其中以臺南柳營及嘉義臺斗坑試驗區所受螟害較其他試驗區爲烈，蓋因栽培制度與品種影響所致，如在來稻栽培面積較多，蓬萊種其孕穗期適値第五代螟蛾發生而引起也，屏東長治鄉試驗區所受災害次之，草屯試驗區螟害均未發生。蓋以應用藥劑防治螟蟲者必須詳加研究螟蟲發生環境，然後始得最經濟和收效亦宏，否則得不償失。就以產量而言，藥劑處理除南投草屯試驗區外與對照區均有顯著差異。藥劑處理間差異不顯著，惟濃度間鮮有差異，高濃度稍較低濃度爲優， 0.20% Sevin WP，防治螟蟲效果與 0.05% Lebaycid 乳劑，0.05% Sumithion 乳劑，0.05% Endrin 乳劑，及 0.05% Imidan 乳劑相等，屏東長治鄉試驗區以 0.20% Sevin WP 處理產量最高，臺南柳營試驗區以 0.05% Endrin 乳劑處理爲最高，臺斗坑試驗區以 0.05% Imidan 處理爲最高，本期水稻受螟蟲爲害，以三化螟爲主，二化螟次之，大螟更次之，詳見表一：

表一　中南部田間藥劑防治二期作水稻三化螟、二化螟及大螟蟲密度消長之調查表

Table 1. Investigation on the Population of Three Kinds of Rice Borers Occurred on the Second Rice Crop in Various Treatments in Central and South Taiwan in 1962

| 藥劑處理 Chemical | 三種螟蟲爲害白穗百分比 Percentage of white heads infested by three kinds of rice borers | | | 三種螟蟲之幼蟲數 No. of three kinds of rice borer's larvae | | | 三種螟蟲百分比 Ratio of three kinds of rice borers | | |
|---|---|---|---|---|---|---|---|---|---|
| | Paddy borer | Rice stem borer | Purplish stem borer | Paddy borer | Rice stem borer | Purplish stem borer | Paddy borer | Rice stem borer | Purplish stem borer |
| 1. 屏東縣長治鄉試驗區 Experiment at Cheng-Tze District, Pintung county | | | | | | | | | |
| 0.05% Lebaycid EC | 100.0 | 0 | 0 | 30 | 5 | 0 | 85.7 | 14.3 | 0 |
| 0.025% Lebaycid EC | 100.0 | 0 | 0 | 34 | 10 | 1 | 75.6 | 22.2 | 0 |
| 0.05% EPN EC | 100.0 | 0 | 0 | 37 | 0 | 0 | 100.0 | 0 | 2.2 |
| 0.025% EPN EC | 98.3 | 1.8 | 0 | 26 | 0 | 0 | 100.0 | 0 | 0 |
| 0.20% Sevin WP | 96.7 | 3.3 | 0 | 37 | 1 | 0 | 97.4 | 2.6 | 0 |
| 0.10% Sevin WP | 100.0 | 0 | 0 | 56 | 13 | 1 | 80.0 | 18.6 | 1.4 |
| 0.05% Endrin EC | 100.0 | 0 | 0 | 18 | 0 | 0 | 100.0 | 0 | 0 |
| 0.025% Endrin EC | 100.0 | 0 | 0 | 20 | 0 | 0 | 100.0 | 0 | 0 |
| 0.05% Ekatox EC | 95.8 | 4.2 | 0 | 5 | 0 | 0 | 100.0 | 0 | 0 |
| 0.025% Ekatox EC | 97.3 | 2.7 | 0 | 9 | 0 | 1 | 90.0 | 0 | 10.0 |
| Check | 98.0 | 2.0 | 0 | 73 | 27 | 1 | 72.2 | 26.7 | 1.0 |
| 2. 臺南縣柳營鄉試驗區 Experiment at Liu-Yin District, Tainan county | | | | | | | | | |
| 0.05% Lebaycid EC | 48.2 | 43.8 | 8.4 | 24 | 20 | 4 | 50.0 | 41.7 | 8.3 |
| 0.025% Lebaycid EC | 69.0 | 26.4 | 4.6 | 20 | 9 | 3 | 62.5 | 28.1 | 9.4 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0.05% EPN EC | 78.2 | 18.2 | 3.6 | 20 | 5 | 0 | 80.0 | 20.0 | 0 |
| 0.025% EPN EC | 83.3 | 16.7 | 0 | 51 | 11 | 0 | 82.3 | 17.7 | 0 |
| 0.05% Sumithion EC | 29.3 | 53.7 | 17.1 | 8 | 16 | 3 | 29.6 | 59.3 | 11.1 |
| 0.025% Sumithion EC | 66.7 | 26.4 | 6.9 | 25 | 24 | 0 | 51.0 | 49.0 | 0 |
| 0.05% Endrin EC | 66.2 | 27.7 | 6.2 | 15 | 5 | 2 | 68.2 | 22.7 | 9.1 |
| 0.025% Endrin EC | 60.7 | 32.1 | 7.1 | 30 | 14 | 3 | 63.8 | 29.8 | 6.4 |
| 0.05% Ekatox EC | 46.9 | 51.0 | 2.0 | 9 | 8 | 0 | 52.9 | 47.1 | 0 |
| 0.025% Ekatox EC | 56.4 | 34.0 | 9.6 | 33 | 19 | 7 | 55.9 | 30.2 | 11.9 |
| Check | 67.1 | 30.6 | 2.3 | 76 | 35 | 3 | 66.7 | 30.7 | 2.7 |
| 3. 嘉義市臺斗坑試驗區 Experiment at Tai-Tou-Keng, Chia-Yi Township | | | | | | | | | |
| 0.05% Lebaycid EC | 80.6 | 19.4 | 0 | 38 | 17 | 1 | 67.9 | 30.4 | 1.8 |
| 0.025% Lebaycid EC | 90.7 | 9.3 | 0 | 99 | 26 | 2 | 78.0 | 20.5 | 1.6 |
| 0.05% EPN EC | 95.0 | 5.0 | 0 | 31 | 10 | 0 | 75.6 | 24.4 | 0 |
| 0.025% EPN EC | 86.2 | 13.8 | 0 | 43 | 27 | 0 | 61.4 | 38.6 | 0 |
| 0.05% Imidan EC | 95.9 | 4.1 | 0 | 4 | 3 | 2 | 44.4 | 33.3 | 22.2 |
| 0.025% Imidan EC | 96.4 | 3.6 | 0 | 56 | 27 | 2 | 65.9 | 31.8 | 2.4 |
| 0.05% Endrin EC | 100.0 | 0 | 0 | 23 | 5 | 0 | 82.1 | 17.9 | 0 |
| 0.025% Endrin EC | 80.0 | 20.0 | 0 | 28 | 14 | 0 | 66.8 | 33.3 | 0 |
| 0.05% Ekatox EC | 92.1 | 7.9 | 0 | 13 | 8 | 0 | 61.9 | 38.1 | 0 |
| 0.025% Ekatox EC | 73.3 | 26.7 | 0 | 35 | 61 | 4 | 35.0 | 61.0 | 4.0 |
| Check | 81.6 | 18.4 | 0 | 217 | 67 | 4 | 75.3 | 23.3 | 1.4 |

## 討 論 與 結 論

藥劑處理有效穗及白穗率除屏東長治鄉及南投草屯試驗區外與對照區均有顯著差異，死孕及後期枯心苗率均無顯著差異；稻谷產量除南投草屯試驗區外，藥劑處理與對照區差異亦顯著，但藥劑處理差異不顯著。屏東長治鄉試驗區藥劑處理每公頃產量3,320至3,680公斤對照區 2,880至3,040公斤；臺南柳營試驗區4,000至4,600公斤對照區3,280至3,680公斤；嘉義市臺斗坑試驗區4,050至4,450公斤對照區3,500至3,350公斤；南投縣草屯試驗區 6,080至6,200公斤對照區5,920至6,080公斤；除南投縣草屯試驗區外，高濃度藥劑處理產量均較低濃度處理爲高，惟差異不顯著。詳見表二：

表二　中南部田間藥劑防治二期作水稻三化螟、二化螟及大螟蟲試驗之結果

Table 2. Effectiveness of Several Insecticides Applied Against *S. incertulas*, *C. suppressalis* and *Sesamia inferens* on the Second Rice Crop in Central and South Taiwan in 1962

| 藥 劑 處 理 Chemical | 每欉有效穗數(平均) No. of effective panicles per hill (Av.) | 後期枯心苗率 Percentage of later dead hearts | | 白 穗 率 Percentage of white heads | | 死 孕 率 Percentage of dead boots | | 產 量 Yield of Rice (kg/ha) | 指 數 Index |
|---|---|---|---|---|---|---|---|---|---|
| | | % | Angle | % | Angle | % | Angle | | |
| 1. 屏東長治鄉試驗區 Experiment at Cheng-Tze District, Pintung county | | | | | | | | | |
| 0.05% Lebaycid EC | 13.1 | 0.6 | 4.2 | 1.2 | 6.2 | 0.04 | 0.6 | 3,320 | 115.3 |
| 0.025% Lebaycie EC | 12.6 | 0.9 | 5.5 | 1.3 | 6.4 | 0 | 0 | 3,320 | 115.3 |
| CK | 10.8 | 1.1 | 6.0 | 2.5 | 9.1 | 0.10 | 1.4 | 2,880 | 100.0 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0.05% EPN EC | 12.9 | 0.9 | 5.0 | 1.0 | 4.8 | 0.04 | 0.4 | 3,520 | 115.8 |
| 0.025% EPN EC | 12.8 | 0.7 | 4.6 | 1.3 | 6.6 | 0 | 0 | 3,440 | 113.2 |
| CK | 11.5 | 1.0 | 5.7 | 1.4 | 6.4 | 0 | 0 | 3,040 | 100 |
| 0.20% Sevin WP | 13.0 | 0.9 | 5.3 | 1.4 | 6.5 | 0 | 0 | 3,680 | 121.1 |
| 0.10% Sevin WP | 12.5 | 1.0 | 5.7 | 2.9 | 9.2 | 0.04 | 0.6 | 3,640 | 119.7 |
| CK | 12.1 | 1.2 | 6.3 | 2.3 | 8.7 | 0.08 | 1.0 | 3,040 | 100 |
| 0.05% Endrin EC | 13.1 | 1.1 | 5.7 | 0.8 | 2.6 | 0.04 | 0.6 | 3,520 | 122.2 |
| 0.025% Endrin EC | 12.8 | 1.1 | 6.0 | 1.0 | 5.6 | 0 | 0 | 3,400 | 118.1 |
| CK | 11.3 | 1.5 | 7.0 | 2.2 | 8.4 | 0.20 | 1.6 | 2,880 | 100 |
| 0.05% Ekatox EC | 12.8 | 0.6 | 4.3 | 1.2 | 6.1 | 0.04 | 0.4 | 3,640 | 126.4 |
| 0.025% Ekatox EC | 12.4 | 1.1 | 5.9 | 0.7 | 4.8 | 0.08 | 0.7 | 3,480 | 120.8 |
| CK | 11.5 | 1.0 | 5.5 | 2.1 | 8.2 | 0.04 | 0.6 | 2,880 | 100 |
| L. S. D. 5% | 0.9 | | 1.9 | | 3.0 | | 2.1 | 242.4 | |
| L. S. D. 1% | 1.2 | | 2.5 | | 4.0 | | 2.1 | 324.3 | |

2. 臺南縣柳營鄉試驗區

Experiment at Liu-Yin District, Tainan county

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0.05% Lebaycid | 11.7 | 4.2 | 11.9 | 1.5 | 6.7 | 0.4 | 2.9 | 4,480 | 128.7 |
| 0.025% Lebaycid | 11.8 | 5.2 | 13.1 | 1.5 | 6.8 | 0.2 | 2.7 | 4,320 | 124.1 |
| CK | 10.5 | 6.9 | 15.4 | 5.8 | 13.8 | 1.2 | 5.6 | 3,480 | 100 |
| 0.05% EPN EC | 11.5 | 4.5 | 12.0 | 0.2 | 4.5 | 0.3 | 3.2 | 4,040 | 123.2 |
| 0.025% EPN EC | 10.9 | 5.3 | 13.3 | 1.1 | 6.0 | 0.3 | 2.7 | 3,680 | 112.2 |
| CK | 9.9 | 7.9 | 16.3 | 7.6 | 15.0 | 1.5 | 6.9 | 3,280 | 100 |
| 0.05% Sumithion EC | 11.4 | 4.6 | 12.3 | 0.7 | 4.1 | 0.2 | 2.5 | 4,160 | 125.3 |
| 0.025% Sumithion EC | 11.3 | 4.1 | 11.4 | 1.5 | 6.9 | 0.2 | 2.5 | 4,000 | 120.5 |
| CK | 9.9 | 6.5 | 14.5 | 9.2 | 17.5 | 1.3 | 6.0 | 3,320 | 100 |
| 0.05% Endrin EC | 12.1 | 3.1 | 9.8 | 0.4 | 3.2 | 0.4 | 2.9 | 4,600 | 135.3 |
| 0.025% Endrin EC | 11.8 | 4.4 | 12.0 | 0.8 | 5.0 | 0.3 | 3.0 | 4,280 | 125.9 |
| CK | 9.6 | 6.2 | 14.2 | 7.4 | 15.7 | 1.5 | 6.8 | 3,400 | 100 |
| 0.05% Ekatox EC | 11.7 | 4.5 | 12.2 | 0.6 | 4.4 | 0.4 | 3.5 | 4,200 | 123.5 |
| 0.025% Ekatox EC | 11.4 | 5.3 | 13.5 | 0.4 | 3.2 | 0.2 | 2.3 | 4,200 | 123.5 |
| CK | 9.8 | 6.8 | 15.0 | 8.7 | 16.9 | 2.0 | 8.1 | 3,400 | 100 |
| L. S. D. 5% | 0.9 | | 3.0 | | 2.5 | | 2.2 | 355.2 | |
| L. S. D. 1% | 1.1 | | 4.0 | | 3.4 | | 3.0 | 477.5 | |

3. 南投縣草屯鎮試驗區

Experiment at Tsao-Tuong District, Nan-Tou county

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0.05% Lebaycid EC | 15.0 | 0.6 | 4.1 | 0 | 0 | 0 | 0 | 6,120 | 103.4 |
| 0.025% Lebaycid EC | 15.6 | 0.5 | 3.6 | 0.2 | 1.2 | 0 | 0 | 6,080 | 102.7 |
| CK | 14.6 | 1.2 | 6.0 | 0 | 0 | 0 | 0 | 5,920 | 100 |
| 0.05% EPN EC | 16.2 | 0.7 | 4.9 | 0.1 | 0.9 | 0 | 0 | 6,200 | 103.3 |
| 0.025% EPN EC | 15.9 | 0.7 | 4.6 | 0 | 0 | 0 | 0 | 6,080 | 101.3 |
| CK | 14.7 | 0.6 | 4.2 | 0 | 0 | 0 | 0 | 6,000 | 100 |
| 0.05% Dimecron EC | 15.8 | 0.6 | 4.5 | 0 | 0 | 0 | 0 | 6,150 | 101.8 |
| 0.025% Dimecron EC | 14.6 | 0.9 | 5.0 | 0.1 | 1.4 | 0.04 | 0.6 | 6,080 | 100.7 |
| CK | 15.6 | 1.0 | 5.8 | 0 | 0 | 0 | 0 | 6,040 | 100 |
| 0.05% Endrin EC | 15.3 | 1.0 | 5.7 | 0.1 | 0.9 | 0.04 | 0.4 | 6,080 | 100.7 |
| 0.025% Endrin EC | 16.6 | 0.9 | 5.4 | 0 | 0 | 0 | 0 | 6,080 | 100.7 |
| CK | 14.9 | 0.8 | 4.6 | 0 | 0 | 0.03 | 0.4 | 6,040 | 100 |
| 0.05% Ekatox EC | 15.6 | 0.4 | 3.1 | 0 | 0 | 0 | 0 | 6,080 | 100.0 |
| 0.025% Ekatox EC | 16.1 | 0.5 | 3.3 | 0 | 0 | 0.03 | 0.4 | 6,080 | 100.0 |
| CK | 15.2 | 1.1 | 5.9 | 0 | 0 | 0 | 0 | 6,080 | 100 |
| L. S. D. 5% | 1.6 | | 2.6 | | | | | 213.4 | |
| L. S. D. 1% | 2.1 | | 2.7 | | | | | 285.6 | |

4. 嘉義市臺斗坑試驗區
Experiment at Tai-Tou-Keng, Chia-Yi Township

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0.05% Lebaycid EC | 11.5 | 0.8 | 4.2 | 1.6 | 6.9 | 0.8 | 4.8 | 4,150 | 123.9 |
| 0.025% Lebaycid EC | 11.4 | 1.4 | 6.2 | 2.4 | 8.5 | 0.5 | 4.1 | 4,350 | 129.9 |
| CK | 9.5 | 1.7 | 6.8 | 7.8 | 16.0 | 2.4 | 8.6 | 3,350 | 100 |
| 0.05% EPN EC | 11.8 | 2.1 | 6.6 | 0.7 | 4.6 | 0.7 | 4.5 | 4,300 | 114.7 |
| 0.025% EPN EC | 10.9 | 1.6 | 6.5 | 1.3 | 6.6 | 1.3 | 6.3 | 4,050 | 108.0 |
| CK | 9.8 | 1.7 | 7.1 | 6.9 | 15.0 | 1.3 | 6.3 | 3,750 | 100 |
| 0.05% Imidan EC | 11.0 | 1.3 | 6.1 | 1.0 | 5.6 | 0.6 | 4.2 | 4,450 | 130.9 |
| 0.025% Imidan EC | 10.9 | 1.0 | 4.9 | 2.0 | 8.1 | 0.9 | 5.1 | 4,200 | 123.5 |
| CK | 9.5 | 2.1 | 7.6 | 8.1 | 16.1 | 1.6 | 7.0 | 3,400 | 100 |
| 0.05% Endrin EC | 11.8 | 1.2 | 5.4 | 0.7 | 4.9 | 0.5 | 3.6 | 4,300 | 124.6 |
| 0.025% Endrin EC | 11.4 | 1.7 | 7.1 | 1.7 | 7.4 | 1.0 | 5.3 | 4,200 | 121.7 |
| CK | 9.7 | 1.7 | 7.0 | 5.4 | 13.3 | 2.8 | 8.8 | 3,450 | 100 |
| 0.05% Ekatox EC | 11.2 | 1.0 | 4.5 | 0.6 | 4.1 | 0.2 | 5.0 | 4,200 | 118.3 |
| 0.025% Ekatox EC | 11.1 | 1.1 | 5.7 | 1,9 | 7.7 | 0.5 | 3.8 | 4,150 | 116.9 |
| CK | 10.1 | 1.9 | 7.5 | 5.7 | 13.7 | 1.4 | 6.6 | 3,550 | 100 |
| L. S. D. 5% | 1.0 | | 2,5 | | 2.8 | | 2.1 | 334.1 | |
| L. S. D. 1% | 1.3 | | 3.3 | | 3.7 | | 2.8 | 447.0 | |


## 摘　　要

本試驗進行期中，依照各地螟蟲發生環境及水稻栽培制度而舉行，先後施藥三次，如嘉義市臺斗坑試驗區注意後期螟蟲發生防治，所謂孕穗及抽穗時期應用藥劑防治無效之高論，足以證明其與實際情形不符，一般農民防治水稻螟蟲均注意前期，而忽視後期，往往釀成災害，比比皆是，以致功虧一簣，凡吾同道應加警惕。本期水稻所受螟蟲爲害調查結果，以三化螟蟲爲主，二化螟蟲次之，大螟鮮有發生。茲據本試驗結果，諸藥劑處理防治螟蟲成效，大致相同，其中以50% Lebaycid 乳劑（來必死）防治螟蟲之效果，不亞於其他殺蟲劑，且對人畜毒力低，以防治螟蟲安全計，頗有推廣價值。Imidan 乳劑（也滅得）屬於有機磷類，對於人畜毒力亦低，經在室內及田間局部試驗結果，防治螟蟲成效亦佳，亦可介紹農民普遍實施應用。EPN 防治螟蟲固屬有效，對人畜毒力，雖遜於巴拉松，惟施用者應謹慎，否則時有中毒發生。Endrin 在田間防治成效變異鮮有發生。據某氏在室內研究結果，防治螟蟲效果，變異甚大，令人費解。至於施藥時期及次數，視螟蟲發生環境及其爲害狀況而決定，禾苗生育在三四星期內，視其初期爲害徵象（捲心）及猖獗情形，施藥一次或二次。認爲最重要時期，如孕穗及抽穗期中，每間隔 7 天或10天施用藥兩次或三欲，同時應注意水稻品種間孕穗及抽穗期長短，斟酌實際情形，以增減施藥次數。禾苗期施用藥劑有效濃度爲0.025%，每公頃施用稀釋液量 1,000 公升，孕穗及抽穗時期施藥劑濃度 0.05%，每公頃施用稀釋液量爲 1,500 公升。

# Control of *Schoenobius incertulas* Walker and *Chilo suppressalis* Walker and *Sesamia inferens* Walker on the Second Rice Crop in Central and South Taiwan in 1962

By

CHIA-HWA TAO

## Summary

The field tests were carried out at Pintung, Tainan, Chia-yi and Nan-tou rice areas, to determine the effectiveness of several insecticides and of concentrates used against these pests on the second rice crop, namely, emulsifiable concentrate of 50% Lebaycid, 45% EPN, 20% Dimecron, 16% Imidan, 50% Sumithion and 19.5% Endrin, and 85% Sevin wettable powder. The spray wash depended upon environmental conditions and agricultural practices when these pests attacked this crop from nursery to mature stage. Occasionally these pests concentrated to attack this crop, during which it was boot stage or negligible tillering stage under favorable conditions and caused to be more severious pests of rice than the tillering stage, among which the paddy borer (*Schoenobius incertulas*) was responsible for damage to rice throughout Central and South part of Taiwan this year. In the Tai-tou-keng trial, emulsion spray was made for three times with auto-knapsack mist blower, at 7–10 days of intervals, when this pest attacked this crop at boot stage or negligible tillering stage. The rate of application was 1,500 liters of dilution per hectare, respectively. All insectides have proven to give about equal effect against these pests in the paddy fields. In order to control of these pests on boot stage was as important as tillering stage. According to the yields of rice from various regional tests of treatments, there were no significant differences between the insecticides and the concentrates used. It yielded significantly higher than the untreated plots. The yield of rice from Cheng-tze trial in Pintung was 3,320 to 3,680 kg per hectare as compared with 2,880 to 3,040 kg in the check, but 0.20% Sevin spray in yield produced highest in the treatments; from Liu-yin trial in Tainan was 4,000 to 4,600 kg per hectare as compared 3,280 to 3,680 kg in the check, of which 0.05% Endrin spray in yield was highest; from Tsao-tuong trial in Nan-tou was 6,080 to 6,200 kg per hectare as compared with 5,920 to 6,080 kg in the check, there was no significant increase between treatments and untreated plot, because, the infestation of rice by these pests was not as affect as other regional trials; from Tai-tou-keng trial in Chia-yi was 4,050 to 4,450 kg

per hectare as compared with 3,650 to 3,750 kg in the checks, of which the 0.05% Imidan spray in yield was higher than other treatments. Spray wash with the exception of Tai-tou-keng trial was applied for three times with auto-knapsack mist blower from tillering to mature stage depending on the degree of infestation in the paddy fields. The rate of application early in the season was 1,000 liters of dilution per hectare, and the first application was followed by a second and a third time. Since the fifth generation of the paddy borer started to attack the rice crop during boot stage or negligible tillering stage, the rate of application on boot stage was increased to 1,500 liters of dilution per hectare for each of the last two treatments.

In the experiments, Lebaycid and Imidan sprays were equally effective in controlling these pests, if their costs are not as expensive as other pesticides they may be recommended for large scale rice pest control in Taiwan, due to its long residual effect and their toxicity to human is lower than both of organic phosphate compounds and chlorinated hydrocarbon compounds consisting of parathion and endrin which have been extensively used for rice pest control in Taiwan rice areas at present.